

ON HIGHWAY ENGINE FAMILY BOXES

The engine family boxes shown below represent groupings of engine families with similar characteristics (i.e., the emissions standards that the engines were built to) for current and past model years. The boxes are categorized by urban bus or non-urban bus and emissions standards. The number of engine families for each box were tabulated from an EPA engine certification database. Each box consists of six subcategories: 2 or 4 stroke technology and the different categories of engines (LHDDE, MHDDE, HHDDE). An example is shown below the engine family boxes.

EPA considers this framework of engine family boxes to be a guideline only. Manufacturers may demonstrate the appropriateness of extending or limiting the applicability of data, on a case by case basis. EPA will consider analyses based on good engineering judgment and the submission of additional data may, or may not, be required.

PRE MY 1988**	
BOX OH-1	

MY 1988-1989	
BOX OH-2	
HC:	1.30
CO:	15.50
NOx:	10.70
PM:	0.60
No. Of Families:	288

MY 1990	
BOX OH-3	
HC:	1.30
CO:	15.50
NOx:	6.00
PM:	0.60
No. Of Families:	155

MY 1991-1992	
BOX OH-4	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.25
No. Of Families:	232

MY 1993 Non-Urban Bus	
BOX OH-5	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.25
No. Of Families:	165

MY 1993 Urban Bus	
BOX OH-6	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.10
No. Of Families:	

MY 1994-1997 Non-Urban Bus	
BOX OH-7	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.10
No. Of Families:	491

MY 1994-1995 Urban Bus	
BOX OH-8	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.07
No. Of Families:	TBD*

MY 1996-1997 Urban Bus	
BOX OH-9	
HC:	1.30
CO:	15.50
NOx:	5.00
PM:	0.05
No. Of Families:	TBD*

MY 1998-2003 Non-Urban Bus	
BOX OH-10	
HC:	1.30
CO:	15.50
NOx:	4.00
PM:	0.10
No. Of Families:	673

MY 1998-2003 Urban Bus	
BOX OH-11	
HC:	1.30
CO:	15.50
NOx:	4.00
PM:	0.05
No. Of Families:	TBD*

NOTES:

* TBD = To be determined.

** EPA/OTAQ staff shall discuss with the retrofit manufacturer to determine the applicability of the

retrofit device to non-regulated engine families also on a case-by-case basis.

ON HIGHWAY ENGINE FAMILY BOXES (Continued)

EXAMPLE OF ONE OF THE ABOVE ENGINE FAMILY BOXES

There are six sub-boxes for BOX OH-7:

MY 1994-1997 Non-Urban Bus LHDDE 2 STROKE

MY 1994-1997 Non-Urban Bus LHDDE 4 STROKE

MY 1994-1997 Non-Urban Bus MHDDE 2 STROKE

MY 1994-1997 Non-Urban Bus MHDDE 4 STROKE

MY 1994-1997 Non-Urban Bus HHDDE 2 STROKE

MY 1994-1997 Non-Urban Bus HHDDE 4 STROKE
